

STATE OF GEORGIA
TIER 2 TMDL IMPLEMENTATION PLAN **REVISION 1**

Spring Creek
 Flint River Basin
 Macon County
 City of Montezuma

I. INTRODUCTION

Total Maximum Daily Load (TMDL) Implementation Plans are platforms for evaluating and tracking water quality protection and restoration. These plans have been designed to accommodate continual updates and revisions as new conditions and information warrant. In addition, field verification of watershed characteristics and listing data has been built into the preparation of the plans. The overall goal of the plans is to define a set of actions that will help achieve water quality standards in the state of Georgia.

This implementation plan addresses the general characteristics of the watershed, the sources of pollution, stakeholders and public involvement, and education/outreach activities. In addition, the plan describes regulatory and voluntary practices/control actions (*management measures*) to reduce pollutants, milestone schedules to show the development of the management measures (*measurable milestones*), and a monitoring plan to determine the efficiency of the management measures.

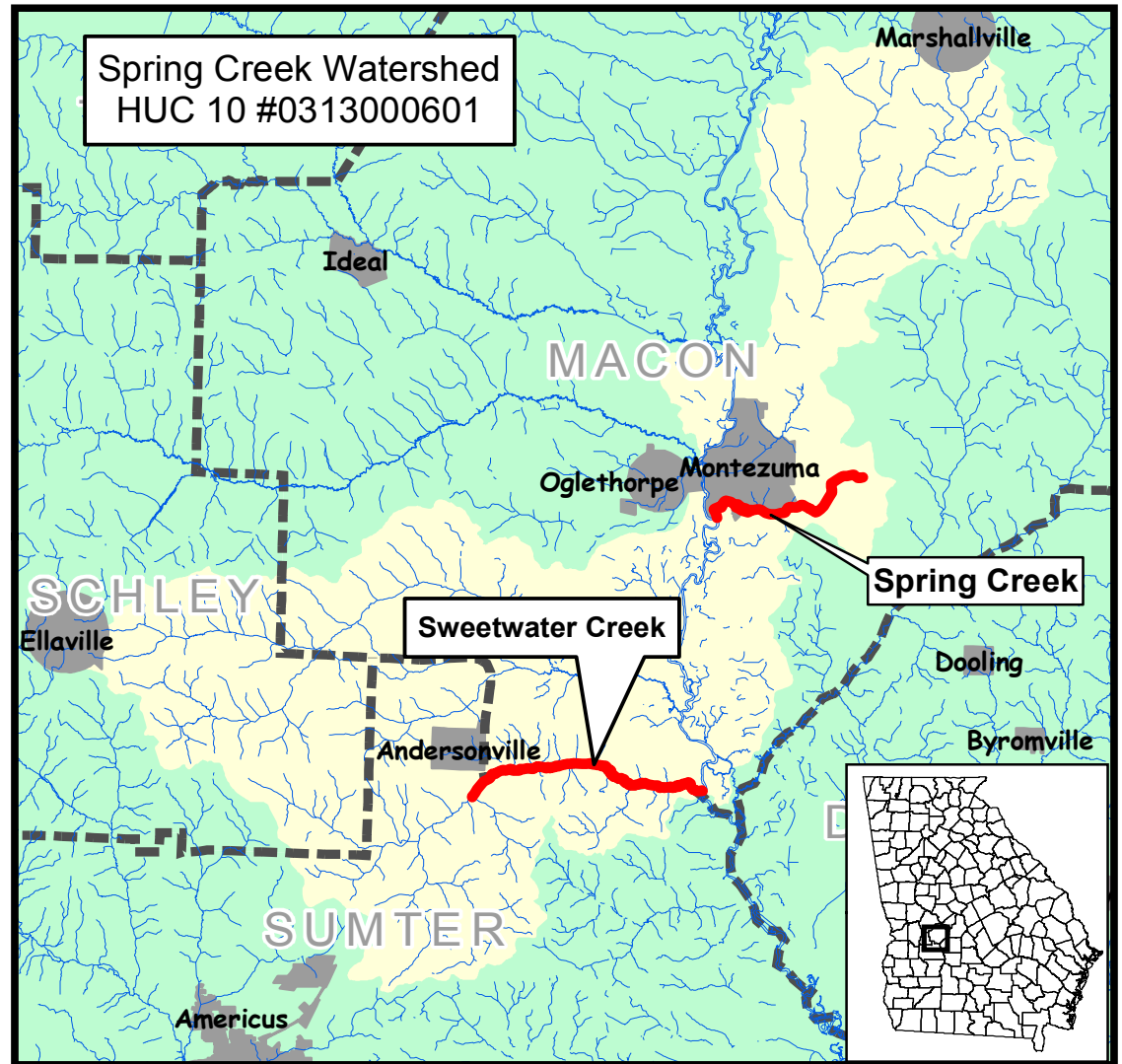


Table 1. IMPAIRMENTS

IMPAIRED STREAM SEGMENT	IMPAIRED SEGMENT LOCATION	IMPAIRMENT
Spring Creek	Macon County	Biota (sediment)
Sweetwater Creek	Headwaters to Flint River, Andersonville	Biota (sediment)
Sweetwater Creek *	Headwaters to Flint River, Andersonville	pH

* Plan will be written by GA EPD

II. GENERAL INFORMATION ABOUT THE WATERSHED

Write a narrative describing the watershed, HUC 10# 0313000601. Include an updated overview of watershed characteristics. Identify new conditions and verify or correct information in the TMDL document using the most current data. Include the size and location of the watershed, political jurisdictions, and physical features which could influence water quality. Describe the source and date of the latest land cover/use for the watershed. Describe and quantify major land uses and activities which could influence water quality. See the instructions for more information on what to include.

The referenced ten-digit HUC is approximately 115,000 acres in size¹, the overwhelming majority of which is in agriculture or forest. Located in three counties, it extends in a northeasterly direction from its southernmost point near Americus (Sumter) to Ellaville (Schley), serves as the drainage basin for the Cities of Andersonville (Sumter) and Montezuma (Macon), and into the southern corporate limits of Marshallville (Macon). The limited development which has occurred over the past ten years is primarily rural (single-family) housing, with some poultry housing added to the previously existing inventory. Major developments include a housing subdivision on Montezuma's northern extremity, and a housing complex and middle school in the southern half of the city. The 2000 Census credited the City of Andersonville with a resident population of 330, and the City of Montezuma with 4,000.

The impaired segment of Spring Creek is located in HUC 031300060107 (refer to map on next page), a sub-basin north of the geographic center of HUC 10. This sub-basin (the subject of the balance of this document) is so small (\pm 4,000 acres) there is no other named waterway in the watershed. The full length of the creek is listed as impaired. Land use distribution in this basin is as follows:

Spring Creek Land Use Distribution				
Forest	Row Crop Agriculture	Pasture/Hay	Residential/Developed	Other*
13%	48%	31%	3%	6%

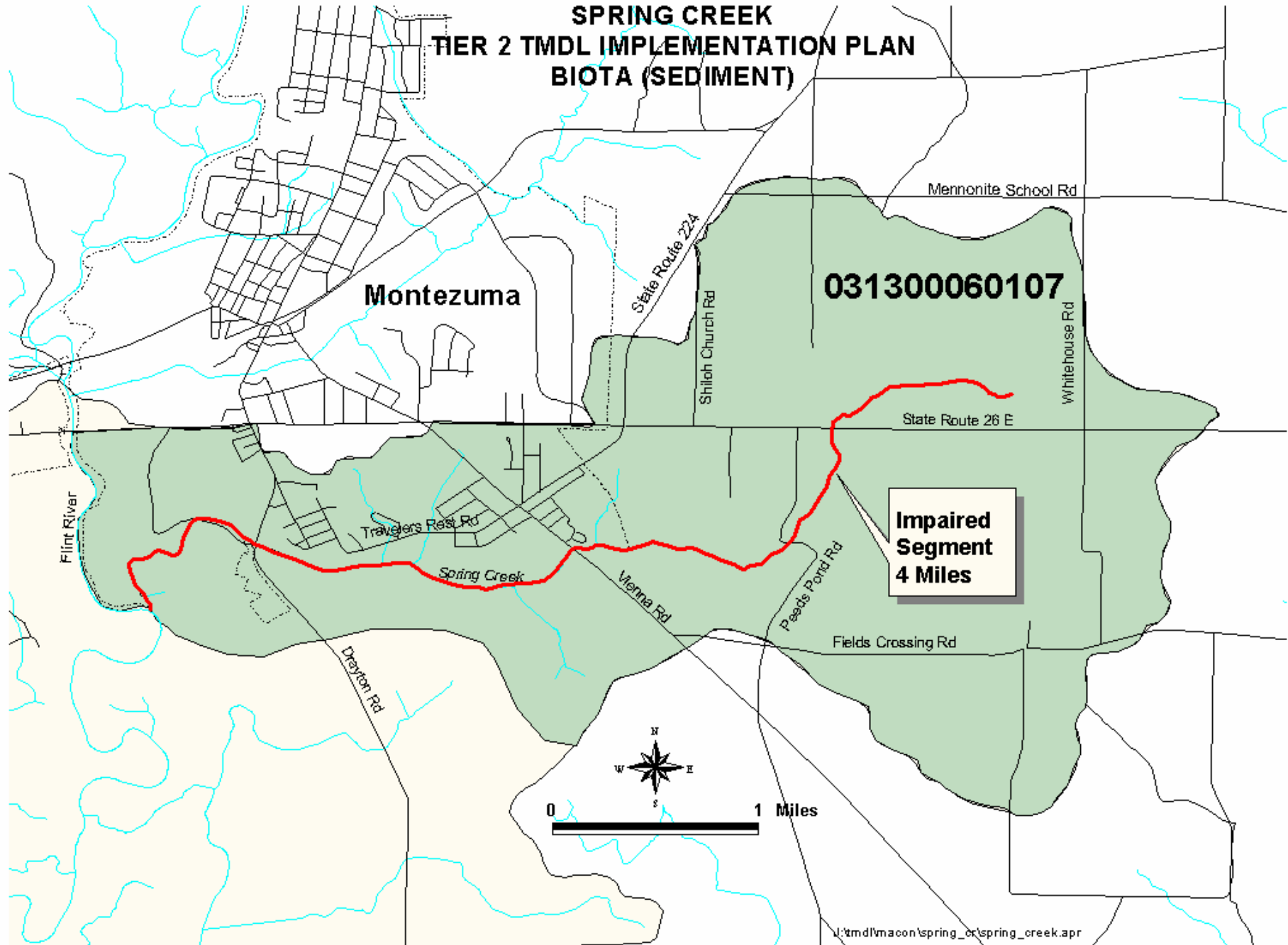
* water, bare rock, sand, clay, transitional, wetlands

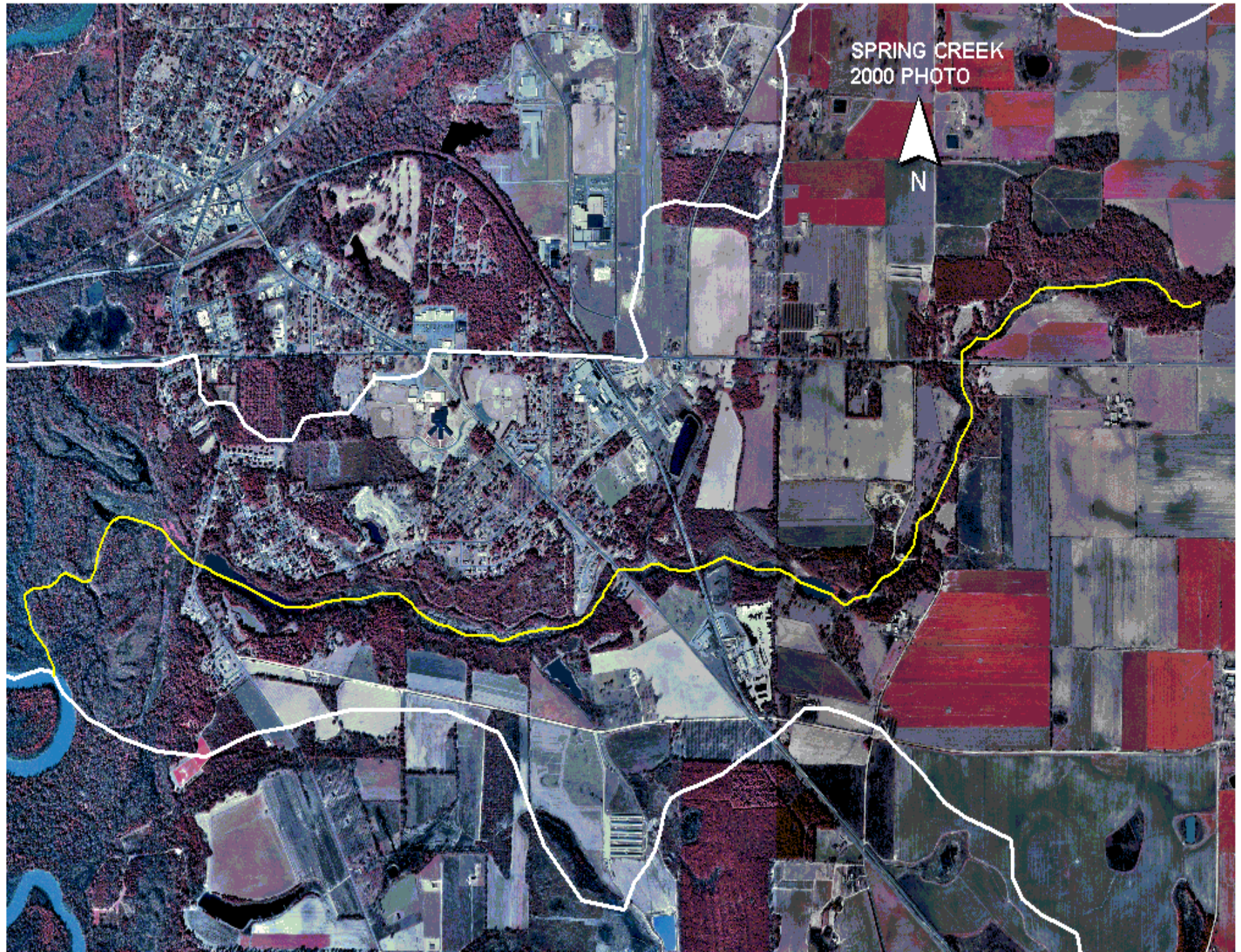
Source: Total Maximum Daily Load (TMDL) For Sediment, EPA Region 4, February 2003; Multiple Resolution Land Coverage Landuse (C03130006)

Based on the limited information provided by the source, it is assumed this land use distribution was derived from Landsat Thematic Mapper digital images developed in 1995. More recent, detailed land use data has not been generated. Development which occurred in this sub-basin over the past ten years has been primarily urban in nature, consisting of the school and housing complex mentioned previously, both located in the lower half of the basin. Increases in single-family residential and poultry housing described in the larger basin do not generally apply to this smaller watershed. Overall, any acreage distribution differences from those presented in the accompanying table are insignificant. (The color photo on page 4 highlights the impaired segment only, not the entire sub-basin.)

The only watershed planning or assessment activity known to be occurring is the Flint River Basin Plan performed under direction of the Georgia Department of Natural Resources-Environmental Protection Division every five years, and currently scheduled for 2005. No other

¹ Georgia Department of Natural Resources-EPD





water quality management or sampling programs are known to be in effect or planned. There are not any Phase I or Phase II stormwater treatment regulated communities or stormwater utility districts in the watershed, and no municipal wells; hence, no Source Water Assessment Plans have been prepared. The basin is neither in nor part of a water supply watershed. Macon County and the City of Montezuma collectively have jurisdiction over the entire HUC 12 basin; neither of which has permit issuing authority for land disturbing activity (erosion and sedimentation control ordinance). Macon County enforces a Logging and Trucking Ordinance regulating the effects of forestry activities on roads, and in river corridors, wetlands and watersheds. There are not any watershed associations or Adopt-A-Stream groups in the watershed. No Section 319(h) grant projects are known to have been implemented or planned. Spring Creek discharges into the Flint River.

To minimize erosion and stream sedimentation from forestry activities, the Georgia Forestry Commission's 7th District office has a specially trained Water Quality Coordinator to educate the forest community about, and promote the use of, forestry Best Management Practices (BMPs). Loggers and foresters are required by most major timber companies to attend 3-day Master Timber Harvesters' Program training which emphasizes use of forestry BMPs.

The District conducts monthly BMP Assurance examinations to provide "reasonable assurance" that forestry operations comply with BMPs. Active sites are identified through numerous means and inspected in an effort to educate landowners about BMPs, their responsibilities and liabilities concerning state water quality laws, and to provide on-the-ground assistance to loggers or operators before problems occur. No such examinations have occurred in this unit, however.

The GFC also monitors BMP implementation. The 7th District participated in the 4th statewide BMP implementation survey (2002) which collected data on 420 randomly selected sites where forestry activities had occurred within the previous two years. Of the 40,159 acres evaluated across the state, 99.1% were in compliance with BMPs. Of the 226 miles of stream evaluated on 287 sites, 94.2% of the mileage was in compliance with BMPs. As a result of the positive results of the Commission's aggressive program, EPA has identified silviculture as the lowest contribution source of nonpoint pollution. The Commission also investigates and mediates forestry water quality and wetland complaints.

The USDA Conservation Reserve Program reduces soil erosion, reduces sedimentation in streams and lakes, and otherwise improves water quality. It provides financial incentives to encourage farmers to convert erodible cropland and other environmentally sensitive acreage to vegetative cover. The basin has landowner participation in this program.

The Environmental Quality Incentives Program provides assistance to eligible farmers to address soil, water, and related natural resource concerns. The program provides assistance complying with environmental laws, and encourages environmental enhancement. The purposes are achieved through implementation of a conservation plan supplemented with incentive payments to implement land management practices. Financial assistance is very limited, and directed more toward state priorities than local need. There is no such assistance currently in the watershed.

Spring Creek

COMPLETE THE FOLLOWING TABLES FOR AND NARRATIVES ABOUT EACH IMPAIRED STREAM IN THE WATERSHED.

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Spring Creek	Headwaters to Flint River	2 miles	Fishing	NS

III. SOURCES AND CAUSES OF STREAM SEGMENT IMPAIRMENT LISTED IN TMDLs

After reviewing the TMDLs written for this stream, complete the following tables with **the information found in the TMDLs**. List each parameter for which the stream segment is impaired and the water quality standard violated. See the instructions for the water quality standards. Describe the sources and causes of each violation identified in the TMDLs.

Table 2. SOURCES OF IMPAIRMENT AS INDICATED IN TMDLs

PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Biota (sediment)	No degradation of fish community.	Sediment	75%

IV. IDENTIFICATION AND RANKING OF POTENTIAL SOURCES OR CAUSES OF IMPAIRMENT

INVESTIGATE AND EVALUATE the sources of impairment for each parameter listed in Table 2. Write a narrative describing efforts made or procedures used to verify the significance and extent of the sources or causes of each impairment listed in the TMDLs. Include:

- Involvement of stakeholder group
- Field surveys
- Review of land cover data
- Evaluation of sources

County tax records were researched to identify owners of properties contiguous to the impaired segment. These and "public" stakeholders received a written invitation (copy attached) to a stakeholder meeting to discuss the reported high sediment count, and possible cause(s) and corrective action(s) which might contribute to an improvement in water quality. TMDL background information was included in the invitation. A newspaper notice (The Citizen & Georgian) invited the general public to the same meeting.

As stated in Section II, recent land use acreage distributions in the watershed have not been generated, but site visits and RDC staff and participating stakeholder familiarity with the watershed confirm the reasonable accuracy of the accompanying tabular data. Development in the watershed has been minimal.

Owners of properties contiguous to the impaired segment shared personal accounts of activities adversely affecting state water quality and erosion and sedimentation control laws. Other stakeholders offered supporting/collaborating information. Many of the activities have been occurring over a lengthy period of time.

To the extent possible, identify sources and quantify the extent of pollution in the stream segment for each of the parameters listed in Table 2 and evaluate the likely impact on the parameter load to the stream. This should follow research performed and described in preceding narrative and should correct or add information to the TMDLs. **The SOURCES SHOULD BE RANKED** from those having the most impact to those having the least impact. The estimated extent of contribution can be expressed as the area of the watershed effected, the stream miles effected, or the number of activities contributing to the problem. The magnitude of contribution should be estimated to be large, moderate, small, or negligible.

Table 3. CONCLUSIONS MADE OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Biota (sediment)	Agriculture	Entire stream	Moderate	Agriculture BMPs not generally applied
Biota (sediment)	Unpaved County Roads	Entire stream	Moderate	Improve unpaved road maintenance practices
Biota (sediment)	"Flood of '94"	Entire stream	Small	Legacy sediment
Biota (sediment)	Urban Development	Lower half of impairment	Small (minimal development)	Improve E&S and stormwater control

V. STAKEHOLDERS

PUBLIC INVOLVEMENT AND THE ACTIVE PARTICIPATION OF STAKEHOLDERS is essential to the process of preparing TMDL implementation plans and improving water quality. Stakeholders can provide valuable information and data regarding their community, impaired water bodies, potential causes of impairments, and management practices and activities which may be employed to reduce the impacts of the causes of impairment.

Describe outreach activities to advise and engage stakeholders in the TMDL implementation plan preparation process. Describe the stakeholder group employed or formed to address the impaired segments in the watershed. Summarize the results of the number of attendees and meetings and describe major findings, recommendations, and approvals.

After issuing letters of invitation and newspaper publication of a notice of public meeting, a stakeholder meeting convened August 26, 2004, in Oglethorpe City Hall to address the listing of Spring Creek on the Federal 303(d) List for biota (sediment). Six property owners and public officials attended.

The first examples of erosion and sedimentation given were urban in nature. The Macon County Middle School was constructed within the past ten years, reportedly without benefit of adequate erosion and sedimentation control structures. Site runoff is currently channeled into Spring Creek. A housing complex was also reportedly constructed without benefit of appropriate erosion control structures. Storm water from a residential neighborhood is diverted onto private property, not only channeling sediment but scouring the discharge site increasing erosion. Stormwater from the city street which roughly parallels the creek through Montezuma is also channeled to the creek. There is a significant vegetative buffer between this street and the creek.

The other examples were of a rural nature. One stakeholder reported sediment channeled along ditches draining the adjoining dirt road had “filled” a family-owned pond. Most of the county roadways in the basin have a dirt surface. Years of soil erosion from an adjoining farm field contributed to sediment channeled along county-maintained ditches and “filling” of the referenced pond. One agricultural official reported farm conservation practices (BMPs) are not common in the watershed.

A dam in the basin failed in the late 1980s, early 1990s. It has since been repaired, but legacy sediment remains. Legacy sediment from the 1994 flood (Tropical Storm Alberto) is also suspected of contributing to current-day deposits.

See site photos in rear of document.

List the watershed or advisory committee members of the stakeholder group for this segment in the following table.

Table 4. COMMITTEE MEMBERS

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Julia Snipes landowner	4168 Hwy 90 East	Montezuma	GA	31063		
Hulbert Terrance Carney/landowner	227 Ponds Road	Montezuma	GA	31063		
Laura W. Carney landowner	-	Montezuma	GA	31063		
Steve Hammond landowner	-	Montezuma	GA	31063		
Kelly Wallace/landowner	-	Montezuma	GA	31063		
Phil Porter, GFC	243 U S Highway North	Americus	GA	31709		
Jeremy Kickler, Macon County Extension	P O Box 486	Oglethorpe	GA	31068		

In Appendix A, list the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

VI. MANAGEMENT MEASURES AND ACTIVITIES

Describe any management measures or activities that have been put into place or will be put into place including regulatory or voluntary actions or other controls by governments or individuals that specifically apply to the pollutant that will help achieve water quality standards. Include who will be responsible for the measure, how it will be funded, the status, the date it will be or was initiated, and a short description of how effective the measure is or will be.

Table 5. MANAGEMENT MEASURES AND ACTIVITIES

GENERAL MEASURES APPLICABLE TO ALL PARAMETERS

MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/ IMPLEMENTED	EFFECTIVENESS (Very, Moderate, Weak)
Federal Clean Water Act Section 404 (Ag and Forestry)	EPA (situations involving forestry are normally referred to GFC to determine compliance)	Requires agricultural and silvicultural practices to adhere to BMPs and 15 baseline provisions for road construction/maintenance in and across waters of the U.S. to be exempted from permitting process.	Farmers Timber Harvesters	Current	June 6, 1998	EPA identifies silviculture as the lowest contribution source of nonpoint pollution
Trucking and Logging Ordinance	Macon County	Regulates silvicultural activity in county roadways, and in river corridors and wetlands	Timber Harvesters	Current		EPA identifies silviculture as the lowest contribution source of nonpoint pollution
Memo to the Field: Application of BMPs to mechanical silvicultural site preparation activities for establishment of pine plantations in SE. (Silviculture)	EPA/ US Army Corps of Engineers - (cases normally referred to GFC for initial determination)	Identifies certain bottomland hardwood wetlands that should be subject to permitting if converting to pine plantations.	Landowner	Current	November 1995	
Federal Farm Bill (Swampbuster, Ag)	US Department of Agriculture NRCS	Prohibits landowners participating in federal price support programs from converting forested wetlands to ag.		Current		
GA Growth Planning Act (OCGA 12-2-8)	GA DNR, Department of Community Affairs, and local units of government	Authorized GA DNR to develop minimum planning standards local jurisdictions could adopt and enforce (river corridors, groundwater recharge areas, and wetlands) Silvicultural activities may be	Landowners Developers	Current	1991	

		exempted from permitting provided activity complies with BMPs				
Georgia Forestry Commission Monthly BMP Assurance Examination	Georgia Forestry Commission (matters involving enforcement are generally referred to GA EPD)	To document "reasonable assurance" water quality will be proactively protected during silvicultural operations, GCF will offer monthly BMP assurance examination of active sites. Sites within watersheds of biota (sediment) impaired streams will be given priority for examination.	Georgia Forestry Commission	Current	1/1/03	EPA identifies silviculture as the lowest contribution source of nonpoint pollution
Georgia Water Quality Control Act (OCGA 12-5-20)	GA DNR EPD	Makes it unlawful to discharge excessive pollutants (sediments, nutrients, pesticides, animal waste, etc.) into waters of the State in amounts harmful to public health, safety, or welfare, or to animals, birds, or aquatic life or the physical destruction of stream habitats.	Developers	Current	1964	
Georgia's Best Management Practices	Georgia Forestry Commission (matters involving enforcement are generally referred to GA EPD)	Inform landowners, foresters, timber buyers, loggers, site preparation and reforestation contractors, et al, about commonsense, economical and effective practices to minimize nonpoint source & thermal pollution.	Timber Harvesters	Current	1989, 1997	EPA identifies silviculture as the lowest contribution source of nonpoint pollution
Conservation Reserve Program (CRP)	Farmers	Encourages farmers to convert highly erodible and other cropland or other environmentally sensitive acreage to vegetative cover.	Federal	Current		Very
Environmental Quality Incentives Program (EQIP)	Farmers	Provides technical, educational, and financial assistance to eligible farmers to address soil, water and related natural resource concerns through a cost-share program to implement eligible structural or vegetative practices such as terraces, filter strips, tree planting and permanent wildlife habitat.	Federal Commodity Credit Corporation	Current		
Watershed Protection and Flood Prevention Program	Watershed Protection and Flood Prevention Program	Protects and restores watersheds from damage caused by erosion, floodwater and sediment to conserve and develop water and land resources, and solve natural resource and related economic problems on a watershed basis.	Federal State Local	Current		
Ordinance Revisions	Local Government	Review current E&S control ordinance and modify as	Local Government	Proposed		Changes are proposed for state's

		appropriate. Include certification program with requirements for pollution prevention at construction site through preparation of an Erosion, Sedimentation and Pollution Control Plan to address trash, construction debris, leaking vehicles, storage of chemicals, etc.				erosion and sediment control program. Channel protection and conservation subdivision ordinances will provide further guidelines for construction activity.
Stormwater Ordinance	Local County Planning & Zoning	Ordinance to address non-point source pollution.				Gives inspector a way to address non-point source pollution

MEASURES APPLICABLE TO INDIVIDUAL PARAMETERS

PARAMETER 1	MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/IMPLEMENTED	EFFECTIVENESS (Very, Moderate, Weak)
Biota (Sediment)	Agriculture BMPs	Farmers	Reduce erosion resulting from agricultural land disturbing activity	Local	Continuous		Weak
Biota (Sediment)	Road maintenance	Macon County	Maintenance of unpaved roads	Local	Continuous		Weak
Biota (Sediment)	Stormwater management	City of Montezuma	Control stormwater from urban development activity	Local	Continuous		Weak

VII. MONITORING PLAN

The purposes of monitoring are to obtain more data, to determine the sources of pollution, to describe baseline conditions, and to evaluate the effects of management and activities on water quality. Describe any sampling activities or other surveys - active, planned or proposed - and their intended purpose. Reference the development and submission of a Sample Quality and Assurance Plan (SQAP) if monitoring for delisting purposes.

Table 6. MONITORING PLAN

PARAMETER(S) TO BE MONITORED	ORGANIZATION	STATUS (CURRENT, PROPOSED, PLANNED)	TIME FRAME		PURPOSE (If for delisting, date of SQAP submission)
			START	END	
Biota (Sediment)	Georgia DNR-EPD	Planned	2005	2005	Flint River Basin Planning – evaluate the effects of management and activities on water quality
Biota (Sediment)	Georgia DNR-EPD	Planned	2010	2010	Flint River Basin Planning – evaluate the effects of management and activities on water quality

VIII. PLANNED OUTREACH FOR IMPLEMENTATION

List and describe outreach activities which will be conducted to support this plan and the implementation of it.

Table 7. PLANNED OUTREACH

RESPONSIBILITY	DESCRIPTION	AUDIENCE	DATE
County Extension, Natural Resource Conservation Service	Stress to farmers economic and environmental benefits of implementing BMPs	Farmers	Continuous

IX. MILESTONES/ MEASURES OF PROGRESS OF BMPs AND OUTREACH

This table will be used to **track and report progress of management measures including BMPs and outreach**. Record milestone dates for:

- accomplishment of management practices or activities
- outreach activities
- installation of BMPs

to attain water quality standards. Comment on the effectiveness of the management measure, how much support the measure was given by the community, what was learned, how the measure might be improved in the future, and any other observations made. This table can be "pulled out" of this template and used to report and track progress.

Table 8. MILESTONES

MANAGEMENT MEASURE	RESPONSIBLE ORGANIZATIONS	STATUS		COMMENT
		PROPOSED	INSTALLED	
Review stormwater regulations, revise as necessary	City of Montezuma	2005-06		
Review unpaved road maintenance practices, modify as necessary	Macon County	2005-07		
Implementation of agriculture BMPs in watershed	Extension Service, Natural Resources Conservation Service, Farmers	2005-07		

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APPENDIX A.

STAKEHOLDERS

List the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Edward E Cowart landowner	846 Good Hope Road	Dalton	GA	30721		
Helen Peaster/landowner	621 College Street	Montezuma	GA	31063		
Spring Creek Nursery, Inc.	901 Drayton Road	Montezuma	GA	31063		
Thomas A McKenzie landowner	P O Box 186	Montezuma	GA	31063		
Flint Area Consolidated Housing Authority landowner	137 Richardson Street	Montezuma	GA	31063		
Judson T Allen Jr. landowner	P O Box 223	Montezuma	GA	31063		
City of Montezuma landowner	P O Box 388	Montezuma	GA	31063		
Robert L Moretz landowner	204 North Dooly Street	Montezuma	GA	31063		
Rudolph B & Melvy Polite landowner	P O Box 514	Montezuma	GA	31063		
Jerry and Julie Riddle landowner	P O Box 301	Oglethorpe	GA	31068		
Julia Snipes/landowner	4168 Hwy 90 East	Montezuma	GA	31063		
West Central Georgia Community Action, Inc. landowner	P O Box 185	Montezuma	GA	31063		
William M Kidd, Trustee/landowner	2425 West Gate Blvd.	Albany	GA	31707		
Mark D Brennehan	391 Fields Crossing Road	Montezuma	GA	31063		

landowner						
Emma Mae Yoder landowner	4653 Route 26E	Montezuma	GA	31063		
Melvin L Yoder/landowner	141 Nina Drive	Montezuma	GA	31063		
Hulbert Terrance Carney landowner	227 Ponds Road	Montezuma	GA	31063		
Lloyd Swartzentruber landowner	2153 Whitehouse Road	Montezuma	GA	31063		
Andy Page, USDA	733 Carroll Street	Perry	GA	31069		
Jeremy Kickler, Macon County Extension Service	P O Box 486	Oglethorpe	GA	31068		
Glen Lee Chase, Macon County Farm Bureau	P O Box 971	Oglethorpe	GA	31068		
Charles W Allen, Chair, Macon County Commission	P O Box 297	Oglethorpe	GA	31068		
Phil Porter, GFC	243 U S Highway North	Americus	GA	31709		
Carl Lowell, Macon County Forestry Unit	P O Box 669	Oglethorpe	GA	31068		
Brenda Oglesby, Macon County Health Department	P O Box 729	Oglethorpe	GA	31068		
Roselyn H Starling, Clerk Macon County Commission	P O Box 297	Oglethorpe	GA	31068		

APPENDIX B.

UPDATES TO THIS PLAN

Describe any updates made to this plan. Include the date, section or table updated, and a summary of what was changed and why.



Road sediment on Peeds Pond Road
Spring Creek



Road sediment on Peeds Pond Road
(note turnout in upper left of photo)



Bank erosion and sediment
Spring Creek



View south from GA Hwy 26
Spring Creek



Stormwater diversion into Spring Creek



Stormwater diversion into Spring Creek

Erosion from “makeshift landfill”



Stormwater diversion into Spring Creek